

What is claimed is:

1. A semiconductor device comprising a fuse which makes connection between a first interconnection and a second interconnection, and a first low heat-conductive section which makes connection between said first  
5 interconnection and a third interconnection at a site of said first interconnection where said fuse is not connected; wherein

said first low heat-conductive section comprises a material having a heat conductivity lower than a heat  
10 conductivity of a material to form said first interconnection.

2. A semiconductor device according to Claim 1, which further comprises a second low heat-conductive section which makes connection between said second interconnection and a fourth interconnection at a site of said second  
5 interconnection where said fuse is not connected; wherein

said second low heat-conductive section comprises a material having a heat conductivity lower than a heat conductivity of a material to form said second  
10 interconnection.

3. A semiconductor device according to Claim 1, which further comprises a third low heat-conductive section which makes connection between said first interconnection and a

fifth interconnection at a site of said first  
5 interconnection where neither said fuse nor said first low  
heat-conductive section is connected; wherein  
said third low heat-conductive section comprises a  
material having a heat conductivity lower than a heat  
conductivity of a material to form said first  
10 interconnection.

4. A semiconductor device according to one of Claims  
1-3, wherein said interconnection essentially comprises Al  
or Cu, and said low heat-conductive section comprises W.

5. A semiconductor device according to one of Claims  
1-3, wherein said interconnection essentially comprises Al  
or Cu, and said fuse comprises W.

6. A semiconductor device according to one of Claims  
1-3, wherein said interconnection essentially comprises Al  
or Cu, and said fuse and said low heat-conductive section  
comprise polycrystalline silicon.

5 7. A semiconductor device according to one of Claims  
1-3, wherein said fuse and said low heat-conductive section  
comprise an identical material.

8. A semiconductor device according to one of Claims  
1-3, wherein said low heat-conductive section serves as a

fuse.

9. A semiconductor device; which comprises:

a fuse which is formed by filling up, with a buried material, a through hole formed to run through an interlayer insulating film;

5 a first low heat-conductive section which is formed by filling up, with the buried material, another through hole formed to run through said interlayer insulating film;

a first interconnection which is connected to said fuse and said first low heat-conductive section and formed  
10 in either an upper layer or a lower layer of said interlayer insulating film;

a second interconnection which is connected to said fuse and formed in a layer other than the layer for said first interconnection; and

15 a third interconnection which is connected to said first low heat-conductive section and formed in a layer other than the layer for said first interconnection; wherein

a buried material for said first low heat-conductive section has a heat conductivity lower than a heat  
20 conductivity of a material to form said first interconnection.

10. A semiconductor device according to Claim 9, wherein said first interconnection is formed in an upper layer of said interlayer insulating film, and a blowout of

said fuse is made by applying a laser beam from an upper  
5 layer side onto a contact site of said first interconnection  
for said fuse.

11. A semiconductor device according to Claim 9;  
wherein

said fuse comprises a plurality of first plugs  
connected in parallel between said first interconnection and  
5 said second interconnection, a plurality of first plugs  
being buried in a plurality of through holes which are  
formed to run through said interlayer insulating film; and

said first low heat-conductive section comprises a  
plurality of second plugs connected in parallel between said  
10 first interconnection and said third interconnection, a  
plurality of second plugs being buried in a plurality of  
other through holes which are formed to run through said  
interlayer insulating film.

12. A semiconductor device according to Claim 11,  
wherein an aspect ratio of said first plug is not less than  
1 but not greater than 5, and an aspect ratio of said second  
plug is not less than 1 but not greater than 5.

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13. A semiconductor device; which comprises:

a fuse which is formed by filling up, with a buried  
material, either a recess section formed in an interlayer  
insulating film or a trench formed to run through the

5 interlayer insulating film;

a first low heat-conductive section which is formed by filling up, with the buried material, either another recess section formed in said interlayer insulating film or another trench formed to run through said interlayer insulating film; and

a first interconnection, a second interconnection and a third interconnection which are formed in either an upper layer or a lower layer of the interlayer insulating film; wherein:

15 one end and the other end of said fuse are connected to said first interconnection and said second interconnection, respectively; and

one end of said first low heat-conductive section is connected to the other end of said first interconnection, while the other end of said first low heat-conductive section is connected to said third interconnection; and

20 a buried material for said first low heat-conductive section has a heat conductivity lower than a heat conductivity of a material to form said first interconnection.

14. A semiconductor device according to Claim 13, wherein a blowout of said fuse is made by applying a laser beam from an upper layer side onto said fuse.

15. A semiconductor device; which comprises:

a fuse, a first low heat-conductive section and a second low heat-conductive section, all of which comprise polycrystalline silicon and are formed on an element

5 isolation oxide film; and

a first interconnection and a second interconnection, both of which are formed in a first interconnection layer; wherein:

said fuse is connected to said first interconnection  
10 by a first contact plug, while said fuse is connected to said second interconnection by a second contact plug; and

said first interconnection is connected to said first low heat-conductive section by a third contact plug, while said second interconnection is connected to said second low  
15 heat-conductive section by a fourth contact plug; and

a heat conductivity for said first low heat-conductive section is lower than a heat conductivity for said first interconnection, and a heat conductivity for said second low heat-conductive section is lower than a heat conductivity  
20 for said second interconnection.

16. A semiconductor device according to Claim 15, wherein a blowout of said fuse is made by applying a laser beam from an upper layer side onto said fuse.

17. A blowout method of a fuse through the use of a laser beam, a fuse making connection between one end of a first interconnection and one end of a second

interconnection, wherein

5       the other end of said first interconnection is  
connected to a low heat-conductive section which has a lower  
heat conductivity than said first interconnection and  
thereby a heat generated at a laser beam irradiation site is  
prevented from being conducted further beyond said low heat-  
10   conductive section.

18. A blowout method of a fuse according to Claim 17,  
wherein said laser beam irradiation site is on said fuse.

19. A blowout method of a fuse according to Claim 17,  
wherein

      said fuse is formed to be buried within a through hole  
which runs through an interlayer insulating film, and said  
5   first interconnection is formed in an upper layer of said  
interlayer insulating film so as to cover said fuse; and

      said laser beam irradiation site is situated on an  
upper layer side of a contact site of said first  
interconnection for said fuse.